Windbreak/Shelterbelt

Wildlife Job Sheet Insert *380W*

Natural Resources Conservation Service (NRCS)—Illinois ***July 2001***

Farmstead windbreak
Photo courtesy of USDA NRCS

Part I. Planning and Design Considerations

Applicability of Practice

Windbreaks/shelterbelts are planted on cropland, pasture, and rangeland; along roads, farmsteads, and feedlots; and even in corners of fields with center-pivot irrigation systems. Wildlife associated with edges in agricultural landscapes in the Midwest may benefit greatly from properly designed and maintained windbreaks/shelterbelts. Windbreaks potentially provide food and foraging sites, nesting and brood-rearing habitats, loafing sites, protection from wind and adverse weather, and escape or refuge cover for many species of birds and mammals. When windbreaks are part of a habitat complex found in the surrounding area, they also may provide important travel corridors that facilitate movement of animals between habitats. They are important resting stops for migratory songbirds during spring and fall. Over 100 species of birds are known to use windbreaks.

Site Considerations

- Landowner objectives (types of wildlife use)
- Proximity to available water
- Adjacent cropland (irrigated or non-irrigated, type of crops)
- Soil qualities (texture, depth, moisture content)
- Connection to other wildlife habitats
- Plant hardiness zones; snow drift control
- Width of area and ability to accommodate desired wildlife species
- Special wildlife needs (e.g., threatened or endangered species)

Mourning dove

Design Considerations

Fish and wildlife design considerations in Midwestern agricultural landscapes include (1) buffer width and length; (2) food value of plants; (3) plant selection to create non-uniform vegetative structure; (4) adjacent land uses; and (5) opportunities to link other wildlife habitats. In general, the wildlife value of windbreaks/shelterbelts increases with width, area, and structural and zonal diversity of vegetative plantings. Note that introduction of tall, woody cover into open landscapes may adversely affect wildlife such as grassland birds that require open habitat. Therefore, careful consider-

ation should be given when planting trees and tall shrubs in historic prairie regions. Refer to the table in Part II to determine plant species suitable to meet the wildlife habitat objectives. In the Midwest, this practice should strive to connect planted windbreaks to other planted or natural forested habitats such as upland forests and riparian areas. If possible, plant legumes and grasses between row plantings to augment food supply. In areas receiving snow, consideration should be given to prevailing wind and snow drifting. In such cases, an additional row of shrub plantings may be needed (50' to 100') on the windward side of the buffer. Alternatively, a strip of unharvested crop left 50' to 100' upwind of the buffer also would serve to reduce drifting within the windbreak/shelterbelt. As is true for all linear or strip habitats (e.g., fencerows, roadsides, or other buffer practices such as filter strips, field borders, riparian forest buffers), wider buffers with varied vegetative plantings will attract more species of wildlife than narrow buffers comprised of a single species. For upland game species, a minimum of three rows of vegetation should be planted: one fruit-bearing shrub, one conifer, and one medium height tree (see vegetation matrix for suggested species). For migrating and nesting songbirds, plantings that provide structural and zonal diversity are recommended. It is further recommended that shelterbelts be greater than 115 ft wide (eight rows) and greater than 1.5 acres in area.

Black-capped chickadee
Photo courtesy of USDA NRCS

Maintenance Considerations

The amount of maintenance required and the method used to maintain shelterbelt vegetation depends on the wildlife and habitat goals. Timing of maintenance may be critical if nesting or migratory birds use the shelterbelt. To minimize disturbance to nesting birds and avoid tree insect and disease problems, prune or thin from October to April. To encourage use by cavity nesters, allow dead and dying trees to remain. If removal is necessary then do so selectively leaving a minimum of one snag/200 ft. Additionally, nest boxes that are properly sized for desired species can be erected.

Part II. List of Shrubs and Small Trees Beneficial for Wildlife

Species	Drainage Adaptation[1]	Average Mature Height (ft.)	Comments/Wildlife Uses
Alternateleaf dogwood	SPD–WD	18	Blue-black fruit with red stems. Fruit eaten by birds. Twigs browsed by deer and rabbits. Leaves not opposite.
American plum	MWD–ED	30	Reddish edible drupe recommended for quail.
Black chokeberry	SPD–WD	10	⅓" dark-purple edible fruit.
Blackhaw	MWD–WD	20	½" long edible drupe, eaten by song birds, quail, and fox.
Bladdernut	SPD–WD	10	3-lobed balloonlike capsule.
Chokecherry	SPD–WD	18	Grows in a wide variety of sites. ⅓" dark-purple edible fruit.
Eastern redcedar	ED–SPD	80	Bluish-black berrylike fruit eaten by cedar waxwings and other songbirds. Provides important protection and nesting cover.
Flowering crabapple	PD–WD	30	Yellow-green edible fruit with fragrant flowers. Recommended for quail.
Flowering dogwood	MWD–WD	30	Showy flowers, glossy red drupe. Recommended for quail.
Gray dogwood	SPD–WD	8	Red pedicles in winter, white drupe.
Hazel alder	VPD–WD	18	Prefers wet to moist soils. Long lenticles on the stem.
Hazelnut	MWD–WD	15	Often forms large colonies. Small edible nut. Squirrels, deer, jays, grouse, quail, and pheasant like. Recommended for quail.
Highbush cranberry	VPD–WD	9	Tart red edible fruits. Eaten by grouse, pheasant, and songbirds. Showy.
Nannyberry	SPD–WD	18	Blue-black fruits similar to raisins, eaten by birds.
Ninebark	VPD–WD	10	Fruit are small dry bladders lasting through winter. White to pinkish flowers.
Pawpaw	SPD–WD	20	Large leaves, likes deep moist soils. Edible fruit. Eaten by opossum, squirrels, raccoon, and fox.
Prairie crab	PD–WD	30	Small fruit, showy flowers.
Prickly ash	SPD–WD	9	A thicket-forming shrub with prickly leafstalks. Fruits are a small reddish-brown pod. Chewing plant parts was once a popular toothache cure.
Red-osier dogwood	VPD–WD	10	Reddish stem, white drupe, good winter color. Fruit sought by songbirds, grouse, quail. Twigs browsed by deer, rabbits.
Redbud	MW–WD	30	A legume, pod 2–3" long, reddish-purple flowers, heart-shaped leaves. Seeds eaten by a few songbirds.
Roughleaf dogwood	PD–WD	18	White drupes. Fruit eaten by several songbirds, grouse, quail, turkey and pheasant. Browsed some by rabbits and deer.

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Part II. List of Shrubs and Small Trees Beneficial for Wildlife (continued)

Species	Drainage Adaptation[1]	Average Mature Height (ft.)	Comments/Wildlife Uses
Serviceberry	MW–WD	30	Berrylike pome, green turning red to black. Recommended for quail.
Shining sumac	MW–ED	8	Tolerates dry, infertile soils. Reddish fruit; eaten by some songbirds, quail, dove, pheasant. Twigs sometimes browsed.
Silky dogwood	VPD–WD	10	Bluish fruit, likes moist soils and partial shade. Browsed some by rabbits and deer.
Smooth sumac	MWD–ED	12	Often forms large colonies. Reddish fruit; eaten by some songbirds, quail, dove, and pheasant. Twigs sometimes browsed. Recommended for quail.
Spicebush	VPD–WD	9	Small red drupe that is edible. Twigs and fruit eaten by songbirds, deer, rabbit, opossum, quail and grouse.
Southern arrowwood	MWD–WD	9	¼" bluish-black drupe, eaten by birds.
Staghorn sumac	MWD–ED	15	Tolerates dry, infertile soils. Reddish fruit; eaten by some songbirds, quail, dove, pheasant. Twigs sometimes browsed by rabbits and deer.
Washington hawthorn	SPD–ED	30	Red fruit that lasts into winter and attracts many birds. Also fed on by deer, fox, rabbit, grouse and pheasant. Excellent nesting habitat for songbirds.
Wild sweet crabapple	SPD–ED	30	Yellow-green edible fruit with highly fragrant flowers. Recommended for quail.
Winterberry	VPD–SPD	10	Erect shrub with small greenish white flowers and bright red berries that persist through winter. Must have male and female plants for pollination.
American witchhazel	SPD–WD	18	Pale yellow flowers that produce pods with seeds. Seeds, buds and twigs eaten by deer, rabbit, quail and pheasant.

[1]Drainage Adaptation: ED = Excessively Drained; MWD = Moderately Well Drained; PD = Poorly Drained; SPD = Somewhat Poorly Drained; VPD = Very Poorly Drained; WD = Well Drained.

Part III. Specifications Sheet

Use Specification Sheet provided with general Windbreak/Shelterbelt Job Sheet. Include wildlife species desired and maintenance specifications relevant to this species or assemblage of species.

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